

REMARKS

Claims 1, 3-11, and 13-16 were rejected under 35 USC 102(b) as anticipated by US 6,382,332 (Eaton). Applicants traverse the rejections.

The present invention relates to techniques for determining velocities ahead of the drill bit, and further transforming those velocities to determine pore pressures ahead of the bit, as a well is being drilled. None of the cited references discloses these features of the invention, nor does their combination teach or suggest all the claimed limitations.

Eaton proposes the use of check-shot measurement to obtain information equivalent to a Vertical Seismic Profile while drilling. Check-shot measurements provide velocities behind the bit. Eaton's measurements are aimed at using check shots while drilling to calibrate seismic data obtained before drilling was commenced or during early stages of drilling (Column 6, Lines 47-51).

Though Eaton describes measurements of propagation times of reflections from boundaries, there is no mention of obtaining velocities ahead of the bit. The Office Action suggests that: "It is known that inverting the travel times determines a velocity of the formation ahead of the drill bit (Wilhelm describing Eaton's methods, Page 1)." (Office Action, Page 2). Even if Wilhelm et al. had described this, this allegation does not meet the requirement for *prima facie* anticipation under 35 USC 102. Further, Wilhelm et al. is citing publications authored by Eaton, B.A., who does not appear to be the same Michael Robert Eaton of US 6,382,332. Thus Eaton does not anticipate the claimed invention.

Claims 2, 12, and 18-25 were rejected under 35 USC 103(a) as obvious over Eaton in view of Wilhelm et al., PREDICTION OF PRESSURE GRADIENTS FROM SEISMIC VELOCITIES, Sept. 2-4, 1998, Del Lago Resort. Applicants traverse the rejections. The patent law makes clear that to establish *prima facie* obviousness, "all the claim limitations must be taught or suggested by the prior art." MPEP 2143.03 (citing *in re Royka* 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974)). The cited references are deficient in this respect because they do not teach or suggest the claimed invention, alone or combined.

As discussed above, Eaton does not disclose the claimed invention. It also fails to teach or suggest the claimed invention. Though Wilhelm et al. relates to check-shot calibration of seismic velocity data for pore pressure estimation, it is not done while drilling. Wilhelm et al.

proposes the use of well information from a neighboring area to calibrate seismic velocity estimates to predict a pore pressure profile. The models proposed by Wilhelm et al. are aimed at improving pre-drill prediction accuracy of fluid pore pressure. All of Wilhelm et al's examples show that "seismic velocity data can help anticipate pressure regimes in deep water turbidite environments before drilling." (Page 6, Paragraph 5). Expressly missing from Williams is any appreciation for, or discussion of, the claimed features of the present invention.

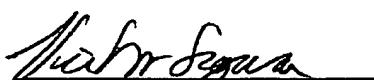
Even if Eaton or Wilhelm et al. had taught or suggested the claimed invention, they are not properly combinable under 35 USC 103. There is no teaching or suggestion in either of the references to combine the elements to do that which is claimed. The absence of such a suggestion to combine the references is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579 (Fed. Cir. 1997).

Claims 16-17 were rejected under 35 USC 103(a) as obvious over Eaton in view US 6,131,694 (Robbins et al.). Applicants traverse the rejections. As discussed above, Eaton does not disclose, teach, or suggest the claimed invention. Alone or combined with Eaton, Robbins et al. also fails to teach or suggest all the claim limitations. And there is no teaching or suggestion in either of the references to combine the elements to do that which is claimed.

Applicants submit that claims 1-25 are in condition for allowance and passage to issuance is respectfully requested. Applicants also request an initialed copy of the Electronic Information Disclosure Statement submitted on May 2, 2005 (copy attached) for the present application. If the Examiner believes that a telephone conference would be advantageous in advancing the issuance of this application, a call to the undersigned at (281) 285-4562 is encouraged.

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Respectfully submitted,



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